



A PUBLICATION OF THE NORTH AMERICAN MYCOLOGICAL ASSOCIATION

The Mycophile Quarterly

OCTOBER NOVEMBER DECEMBER 2024



HOLIDAY GIFT GUIDE

ANNOUNCING
NAMA Annual
Foray 2025

BOOK REVIEW
*Have a Good
Trip: Exploring
the Magic
Mushroom
Experience*
by Eugenia Bone



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Image of Decay
by Kurt DeGregorio



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Visit www.namyc.org or email Luke Smithson
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Archive Copies
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Content
Please contact Mycophile@namyc.org with your article proposals and ideas. We'll get you published!

Submissions
Submissions must be received in editable-document format (do not send pdfs), with photos attached separately (not embedded) and photo credits provided.



NAMA

Toadstool Picker's Review

Here's to three more years!



NAMA President Trent Blizzard and Web Admin Kristen Blizzard

I am excited to make it official and announce that I am going to serve a second 3-year term as President of The North American Mycological Association. Kristen and I have both enjoyed the last few years and look forward to a few more. NAMA has a great team of people volunteering and working within the organization, with whom we really enjoy collaborating.

Although we are officially announcing our 2025 Annual Foray in this *MQ* issue, we don't yet have any locked-in plans for Regional Forays. Last year, NAMA held two Regional Forays, one each in Arizona and Mexico; at times it felt like a bit much "too mush" to manage but we are very proud of the results!

Planning NAMA's upcoming forays has been part of the job the last few months (and years). It is a real challenge to find locations that comfortably accommodate 300ish people nearby to great mushroom habitat. These events are all about the mushrooms! Even though we cannot orchestrate the weather, we do want to schedule events during a time of year that maximizes our odds of landing attendees into a fungal wonderland. When at all possible, we seek new venues and locations where we have never held a foray and we prioritize regions we haven't

visited recently. The last six years have brought us to Washington, Arizona, North Carolina, Missouri, Wisconsin, New York, Colorado and Mexico. Vermont is next!

Fortunately, NAMA has a team working on the foray-site selections. Notably, Ken Buegelesein (Foray Committee Chair) and Bruch Reed (COO) are involved. Pacific Northwest NAMA Camp Chief Mycologist Noah Siegel has also been tremendously helpful, weighing in with his expert mycological opinion.

As always, you are invited to add your two cents on where and when we should go! Just email president@namyco.org with your idea!! Please be ready for my standard question: what facility will accommodate NAMA in your recommended area? Finding and choosing an affordable but effective venue is the most difficult part of planning these events.

We hope you will consider attending our September 2025 Annual Foray in Vermont and maybe even join our foray planning committee! See you out there. ①



Trent Blizzard
President



NAMA News

Learn about all the
Happenings in and
around NAMA.



Instagratitude!

KATHY YERICH, MARKETING COMMITTEE CHAIR

Myco Events are popping up all over the world like, well... mushrooms! Let NAMA's social media accounts inform you and ease your FOMO (Fear of Missing Out).

Thank you to the talented contributors listed below who shared delicious, inspirational and informative content to our Instagram account from 9/02/24 to 11/23/24. This includes our talented Liv Filialuna [@olivia.p.filialuna](https://www.instagram.com/olivia.p.filialuna), who makes sure you are always in the loop on NAMA events, including the monthly book club, webinars, scholarships and sometimes sneak peeks behind the scenes.



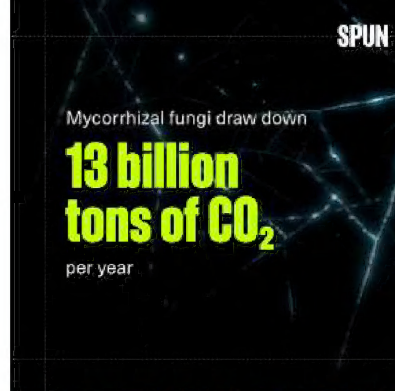
INSTAGRAM TAKEOVER ARTIST (SEPT.2-NOV.23)

Mercury	@queerhippie_art
Olympic Peninsula Fungi Festival	@opfungifestival
Featuring Maddies Mushrooms	@maddies_mushrooms
KK (Kaitlyn Kuehn) of Flora Funga Podcast	@florafungapodcast
Society for Protection of Underground Networks (SPUN)	@spununderground
Ohio Mushroom Festival	@ohiomushroomfestival
Featuring Vint Westley	@shroomer_hasit
SYM CYTO	@SYM CYTO
Joe Pallante	@myconeer
Krista of FunGal Forager	@the_fungal_forager
Mycospaera	@Mycospaera
Featuring Mathias Rocheleau-Duplain	@mycosystema
Featuring David Fortier	@dfortier409
Featuring François Guay	@fungikingdom.qc
Featuring Jonathan Cazabonne, Joël Caux, Katia Burelle and Lucile Berthelot	@jonathan_czbx
Humboldt Bay Mycological Society	@hbmycologicalsociety
Featuring Mandy L. & Kendall R.	@jellybaby3000& @kendallfire_
Aaron Hilliard of Mushroom Wonderland	@mushroom.wonderland



Because of their dedication, our account has grown to nearly 27K followers! If you haven't already, please check it out [@northamericanmyco](https://www.instagram.com/northamericanmyco).

Not an Instagram user? You can catch the same content on the [NAMA Facebook page](#) and we encourage you to follow the [NAMA Facebook Group](#) and post YOUR mushroom-related content there! 🍄





NAMA Forays

Embark on an Immersive
Experience with
NAMA Forays.

Announcing NAMA Annual Foray 2025

HEN BEUGELEISEN, FORAY COMMITTEE CHAIR



NAMA's 2025
Annual Foray will
convene at [Potash
Hill](#), a repurposed
former college
campus, near
Marlboro,
Vermont,
September 11 to
14, 2025!

The lush campus
and grounds
of Potash Hill
feature a variety

of housing and community-space options more than ample for our Annual Foray needs as well as hundreds of acres of lush woodland renowned for fungal bounty. Situated in southern Vermont between Brattleboro and Wilmington, the facility is encompassed by a 560-acre property with early 19th century farm houses, arts



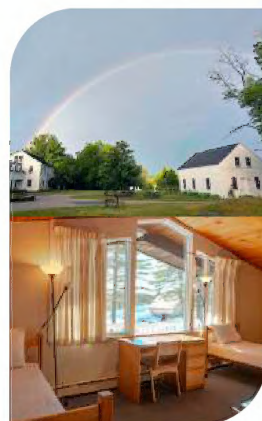
POTASH HILL

and academic buildings, expansive views and undeveloped forests with an extensive network of trails. Hartford's Bradley Airport is located about 90 minutes away and Boston's Logan Airport is 2.5 hours' drive. There is also daily train service to Brattleboro from East Coast cities.

Most of the cleared areas and buildings on the central campus are contained within approximately 65 acres. The rest of the campus is primarily undeveloped forest, which Potash Hill's

management is committed to preserving.

The NAMA Foray Committee team can't wait to build another Field of [Fungal] Dreams for your foraying pleasure and we hope to see you there! 🍄



My Pacific Northwest NAMA Camp Mushroomy Musings

DAVE LAYTON, FIRST VICE PRESIDENT AND NOMINATING COMMITTEE CHAIR

My wife Sally and I flew to Portland, Oregon on Tuesday October 29, where my sister Nancy and her husband Rick picked us up. They provided a guest apartment for us and loaned us their nice Chrysler Pacifica to drive to the NAMA Annual Foray. It was the best of all worlds: a family visit and North America's premier foray event!

On Thursday afternoon I signed up for a shift at the check-in table arriving almost on time except for my own check-in and training—oops! It was a beehive of activity. Fellow NAMA Executive Board members Melodie Gates, Chesire Mayrsohn and Bruch Reed were already really busy but not as busy as Foray Registrar Peggy Green, who was in charge of check-in and a host of other activities. She was incredibly patient while training me, despite other nearly constant demands. Chesire also appeared patient waiting for me to take over her shift, but if I were in her place I'd be tempted to mutter something. Eventually Peggy made sure I was part of a well-prepared team led by Foray Chair Ken Buegeleisen, who remained imperturbably happy even when putting out fires (including an actual smoke alarm during the cooking demonstration the next evening!). By Thursday, Melodie had already done a ton of preparation work both as a NAMA Executive Committee member and as a leader of [South Sound Mushroom Club](#) (lead partner among the four regional host clubs) but she still hung in there with me until supertime. You're amazing, Melodie!

Thursday evening, Sally and I enjoyed a great presentation delivered by Regina Johnson on the biology of the area. Then I visited the gymnasium, where already hundreds of vouchered finds from Thursday afternoon forays were being identified. I was stunned by the variety of collections and wondered if





Stephen Russell with samples for DNA sequencing.

they had left any fungi for the next three days. I didn't need to worry because the finds would get even better. I was also impressed by dozens of dedicated volunteers working in the Voucher Collection Project ID room. They included a number of energetic students guided by some of the foremost mushroom experts in America, including Dr. Andrew Wilson, Dr. Amy Honan, Christian Schwarz, Noah Siegel, Shannon Adams, John Plischke III, Alan Rockefeller and more. DNA sequencers Stephen Russell and his team were already in high gear preparing specimens

for genetic barcoding. On Saturday, Stephen showed me a huge bag of samples ready for DNA testing. Dr. Wilson, another imperturbable fellow, was in charge of everything going on in that gym. Sally and I were blessed to stay in the dorms directly across from the ID room, so I visited there repeatedly every day. I tried not to be a nuisance but there were oh-so-many questions to ask!

Thursday night was the Halloween costume party. I came dressed as a boring-looking old guy; I feel I really nailed the look. Despite my pathetic garb, I was delighted by the abundance of colorful and creative fungi costumes, including a guy wearing a real artist conk with eyeholes for a mask (later identified as Pat Mitchell, founder of [Blue Ridge Mycological Society](#)). My favorite costume was worn by Kajsa Danielson: a white dress with a broad white mushroom cap. The cap had light shades of tan and correctly-shaped tufts for one of my favorite mushrooms, *Chlorophyllum rhacodes* complex. I had good memories of sharing some with my family last October when I visited Salem. I said to



Kajsa Danielson as a shaggy parasol.

Kasja, “Wow you’re a shaggy parasol, one of my favorites!” “That’s right!” she exclaimed, “Everyone else thinks I’m an *Amanita*!” I found myself in a fairly puffed-up state after that.

Friday morning, Sally and I drove Nancy’s six-passenger vehicle to the commuter foray and we took three others with us into wonderland. The foray provided delightful conversation as well as gigantic old-growth trees, huge ferns and abundant fungi, including a bag full of chanterelles that I picked, which would come in handy the next day.



Rose Tursi's *Cordyceps* incarnation, with "Stetson and Hat."

Next, I sat with NAMA President Trent Blizzard and Awards Committee Chair Phil Carpenter in the back of Dr. Michael Beug's lecture on medicinal mushrooms, until we had to leave for the NAMA leadership meeting. Dr. Beug talked about his ground-floor experiences with psilocybin-containing mushrooms working with Gordon Wasson, Paul Stamets and Dr. Timothy Leary. What those guys did in the 1950s changed America's history and here I was, listening to one of them! We had to leave for our meeting, but Phil said we couldn't leave until we heard Michael's personal psilocybin story. He was right, it was the funniest, most whacked-out mushroom-related story I've



Dr. Cornelia Cho and Sam Landes as the "Scary Lincoffs!"

The afternoon workshop on Pacific Northwest boletes by Chief Mycologist Noah Siegel was fascinating but I confess that my eyes blurred at all the differentiation of genus and species of small-to-medium, brown-capped, yellow-pored, reddish-stemmed, blue-staining boletes—even though I'm all about similar-looking (yet very different) boletes in Iowa. That talk would also prove to be quite valuable later.



Ben Kinsley's "Otzi the Iceman," Pat Mitchell's Shaman Figure, Ken Beugeleisen reveling in the celebration of creativity he conjured.

ever heard! You can find it on YouTube by clicking [here](#). At dinner, Dr. Beug walked around giving people tastes of his “\$500-a-bottle” port that he generously donated to NAMA’s Silent Auction.

His jovial, garrulous personality reminded me of my dad and his winemaking even more so. My dad loved to make strong, strange wines like this port. His wine ended up raising hundreds of dollars for the NAMA Scholarship Fund, thanks to John Cox of Mid Hudson Mycological Association.



Dr. Michael Beug sharing his famous port, won in the Silent Auction by John Cox (second from left).



Dr. Gordon Walker cooking up many folks’ first matsutake taste, including mine.

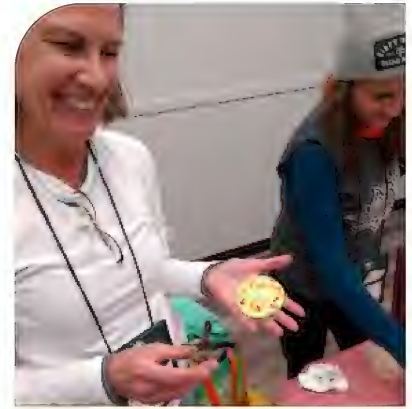
On Friday night, Christian Schwarz’ keynote presentation on Mushroom Bioregions was eye opening, including his answer to my question on how can so many amazing mushrooms emerge at the top of Arizona’s isolated cloud island Mount Graham, where my dad lives and where I had a wonderful mushroom-finding experience in 2008. Schwarz said the population was always there. It was a remnant going back to when the climate in the whole region was much more forested and mushroom friendly—wow!

Afterward the keynote was the mushroom-tasting social, which finally got underway after Ken was able to get the smoke alarm turned off. It was well worth the wait! I tasted my first matsutake, which I had long ignorantly disparaged because of its price. It is indeed very tasty and unique but I still say that no mushroom should cost \$200 a pound. The mushroom-infused cocktails (provided by Melissa Perry-Klotka of [Wisconsin Mycological Society](#)) and beer were too good also and I returned to the bunkhouse feeling no pain. I’d met many fascinating people by Friday night including Larry Miller, who learned about mushrooms directly from Alexander Smith; I wore out the pages of Smith’s book in my early mushrooming years.

Saturday morning, Sally and I had our second delightful conversation with JoAnn and Eric Olson, who’d hosted Noah Siegel and Christian Schwarz in their home while the two men were writing their great book, *Mushrooms of the Redwood Coast*! How cool was that? They had also forayed with David Arora. JoAnn said,

"It was kind of strange though. He wanted to eat every different mushroom." I nodded, realizing that I'm kind of strange that way too.

Unfortunately, the great conversation caused us to miss the meeting place for Saturday's commuter foray. That's okay, we'd just drive up to a trailhead and take a walk ourselves. What could go wrong? Well the car's front end with its 1,000-lb battery slid up on a hidden moss-covered rock while I was turning around to park and there it sat while we started to walk fifteen miles back to Packwood. Fortunately an elk hunter on his way to set up camp picked us up, turned around and took us back to Packwood where we failed to get the local tow service to answer the phone. "Jack" refused any money so I said his karma had to be good enough to get his first elk this year. Thank you, Jack of Packwood!



Sylvia Ritchie and Lynn Anderson enjoying the Visual Arts Committee's Craft Cave.



Dr. Amy Honan and VCP Student Assistant Clarissa Arana dressed up to the absolute NINES.

We went to a coffee shop and called the tow company in Morton where the guy said he'd do it but it would cost \$1,500 and would AAA cover it? I called him back saying no, but before I could tell him to come anyway, two guys whose names I only wish I had retained heard my conversation and asked, "Did he say \$1,500? We have a friend who works for us and also does logging with a winch who can do it for a couple hundred bucks." Their friend "BJ" was there before we could finish our coffee, and the guys drove us up to meet him at our car. They wouldn't take any money either, saying, "We take care of folks up here." One of them started talking about chanterelles, so I mentioned that I had a bag of them in my car. Yes he would be happy to take

some chanterelles off my hands. Those chanterelles were worth way more than the priciest matsutake, considering the value of the service these kind men provided us. BJ refused to take more than \$200 for the winching job and we were back at Cispus in time for afternoon presentations. In short, we got to meet some local folks who were the salt of the Earth, an even better experience than any mushroom hunt!

Sally and I visited the Craft Cave when we got back and bought some cool prints for our cat sitter back home as well as gift coasters for my sister in the Silent Auction room. Then I visited the ID room walk-through where I listened to Noah, Christian and others talk about the day's finds. Their knowledge reminded



Chief Mycologist Noah Siegel astounds again at final tabletalk.

me of how far down the fungal totem pole my own knowledge really was. No matter what else I learn at these forays, I get a solid lesson in humility. Noah's keynote talk about mushrooming around the world made me and probably almost everyone else in the room envious. I was amazed at how he could do so much, know so much and share so much without a hint of arrogance.

Outside our barracks that evening, I met Stetson Jenkins and the aforementioned Pat Mitchell. Pat shared leadership of the UV Night Hike, among many other duties at the event, and Stetson was a hardworking volunteer whom Ken had previously photographed sleeping, which he later incorporated into the evening's presentation.

Apparently these guys are fun to joke with so I took my chance too. When they told me their names I replied, "Oh Stetson and Hat, that's perfect."

"No it's Pat, not Hat."

"Too late—that's how I'll be able to remember you both!" causing much mirth.

I got a text after the foray saying, "Hi Dave, this is Hat."



Armillaria in the ID room under UV light.

The UV Night Hike returned to the ID room where Luke Smithson and I were hanging out. We had a fun time getting folks to shine their lights on mushrooms we were interested in. I learned that those lights are a great way to spot any mold or contaminants on mushrooms that may have been sitting out too long.

Later, after mushroom cocktails, I joined a bunch of mostly young folks partying around a great fireplace in a large shelterhouse. I played on my hooter with a couple young women who were good guitarists and singers. One performer, Julie,



Xerocomellus diffractus. photo by Noah Siegel, taken from Global Fungal Red List Initiative.

knew many popular songs that even an old fart could play. Her strong voice cut through the din of conversation... for a few yards anyway. Mushroom cocktails and matsutake were passed around liberally. I felt like I was getting royal treatment. Well, I was getting royally something, anyway. When I stepped away from the crowd, it seemed like everyone was talking

and nobody was listening. Then Stephen Russell, an amazing DNA sequencer, joined me. I thought, oh boy I sure have some questions for him. But he was one of the listeners. He asked me how I got into hunting mushrooms fifty years ago. I thought, he'll get an earful of my jabbering now! So before I learned from him about how new mushrooms could ever get more than provisional names, he learned about a Seventies book, *Another Roadside Attraction* by Tom Robbins. At 1:00 AM., I started to turn into a pumpkin and said my goodbyes. I had a long drive home in the morning.

Going home, we took some backroads hoping to find mushrooms for breakfast Monday but didn't find any good ones. However, It turned out that some of what Noah said became really useful. When Sally and I stopped on our way back at a rest stop that featured a few acres of towering evergreens between Portland and Salem, we found dozens of fresh, worm-free cracked-cap bolete buttons to take home. Noah's words about the western version came back, making it easy for me to get to *Xerocomellus diffractus* as an ID on the internet. They were quite tasty with our eggs at Nancy's Monday.

One final thought—NPR recently had a segment about good pride versus bad pride. One type leads to accomplishment and the other leads to arrogance or hubris. The speaker implied that some folks have one kind and other folks have the other. I think it's really a double-edged sword that we all wield to some degree. It just depends on how we swing it. There're so many amazingly accomplished people at these forays who practice good swordsmanship that we can't help but come away with a little better skills too. I hope that everyone at Pacific Northwest NAMA Camp comes away proud to have been a part of it! 🍄



NAMA

Affiliated Club Spotlight



Delighted WCMA foray group sharing their fungal finds.

Club Profile: Western Colorado Mycological Association

PEGGY GREEN, FORAY REGISTRAR AND CLUB RELATIONS COMMITTEE

Photos courtesy of Hamilton Pevec

The [Western Colorado Mycological Association](#) (WCMA) has achieved remarkable milestones in a short span of time, including becoming an officially NAMA-affiliated club in 2024. WCMA is not just a newly affiliated club but also a newly formed organization, having formed in March of 2023.

Colorado has several mushroom clubs but none in the Western Slope area of the state. Led by WCMA president Hamilton Pevec, the group coalesced among local mushroom enthusiasts and has managed to put together a governing board of directors, a fantastic website and the systems required to take in their membership dues, as well as obtain its 501(c)(3) federal nonprofit status—not bad for being just over a year old!

WCMA is not just a club. It's a community-centered organization based in Carbondale, Colorado, deep in the heart of the Roaring Fork River Valley. The club is dedicated to serving Coloradoans living on the Western Slope of the Rockies, with aspirations of starting chapters in other western Colorado cities such as Grand Junction, Telluride and Montrose.

WCMA holds monthly meetings, both in person and via Zoom, featuring presenters willing to share wisdom and knowledge in their respective areas of mycology. The meeting topics are varied, including such subjects as mushroom cultivation, mushroom cooking demonstrations and presentations on the latest scientific advancements in mycology by PhD mycologists. In the winter of 2023, they held a panel discussion on the impact of a new Colorado law, the Natural Medicine Health Act, which legalizes the medicinal use of psilocybin and other psychoactive medications that are administered in a treatment-center setting. WCMA President Hamilton Pevec served on the subcommittee of "Product Testing and Standards" to the governor of Colorado.



Club members Andy Bator and Jake Renner



Member Devika proudly holds up a large *Ganoderma applanatum*.

WCMA holds forays during mushroom season, concentrated in the Colorado River Roaring Fork Valley, White River National Forest areas from Aspen to Glenwood Springs. The forays are limited to 12 participants, providing plenty of personalized attention and complying with the club's National Forest Free Use Permits. The forays focus on mycoecology and fungal identification.

WCMA has fully embraced the citizen-science aspect of mycology and, in 2024, plans to collaborate with Dr. Amy Honan of Crested Butte Botanic Gardens on a Colorado fungal mapping and diversity survey to document, collect and



DNA-sequence fungi found in their area. They hope to continue the project in years to come. The August 2024 Scientific Documentation Expedition was a great success, with over 50 high-quality observations made and uploaded to iNaturalist.

WCMA has around 100 members and a substantial social media following, with over 1,600 followers on its Facebook and Instagram pages. The annual membership dues are incredibly reasonable, at \$12.50 for a student, \$32.50 for an individual and \$53.50 for family memberships. They also offer lifetime memberships and nonprofit organization memberships.



WCMA foray ID table

The club has implemented an innovative management model to help finance young mycoenthusiasts. After the annual club operating expenses are paid for the year, the club raises money at its birthday party, “The Galerina Gala,” and allocates funds to a scholarship for a local mushroom-centered individual or business to use in any way they might need, from paying their housing expenses and groceries to buying equipment needed to get their business up and running. No strings are attached to how the recipient can use the money; it’s given so they can continue their mycocentric endeavors. Now that’s innovative!

The WCMA has accomplished an inordinate amount in under two years: they’ve formed a club, established a board of directors, become a 501(c)(3) nonprofit organization, have a website, hold meetings and forays, contribute to citizen science, give away profits, and are an official NAMA-affiliated club. WOWZA!!! Check out their beautiful website to learn more! [📄](#)

mq



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24

Holiday Gift Guide

NAMAwear is just right for any occasion!

shop.namyco.org

\$24-\$46

Wear your NAMA membership pride on your sleeve—literally! This eye-catching design hails from 2023 Annual Foray Logo Contest runner-up Karen Milnes. These high-quality shirts and hoodies have become some of our favorite fungal attire! NAMA's Shopify makes ordering easy! – *Kathy Yerich, NAMA Marketing Committee Chair*



The Rural Mushroom

[Facebook Profile](#)



\$15 As you know from devouring the July-August-September 2024 MQ, Ashley Laman conquered our Culinary Arts Committee's 2024 *Chopped*-style Challenge with her Polypore Parsnip Pasta and now you can order her innovative, winning entry (and other mushroom-centric products) through her business Facebook page called "The Rural Mushroom." – *Julie Schreiber, Culinary Arts Committee Chair*

Make It Fancy: Cooking with a Sad Papi

www.simonandschuster.com

\$35 NAMA Culinary Arts Committee member Dr. Gordon Walker suggests Brandon Skier's cookbook *Make It Fancy: Cooking with a Sad Papi* (Simon & Schuster, 2024) to which he penned a rave review in the April/May/June 2024 MQ. "His recipes are easy to follow and yield great results. His writing helps you learn techniques and methods to enhance your cooking in general... The special touches used throughout the book truly elevate simple, seasonal food into something remarkably delicious. I wholeheartedly endorse *Make It Fancy*..."



Mason Goes Mushrooming

www.masongoesmushrooming.com

\$16.69 Multiple NAMA members wrote in to recommend author Melany Kahn's and illustrator Ellen Korbonski's *Mason Goes Mushrooming* (Green Writers Press, 2022) for the budding little mushroomers in your life. "There are treasures in the forest just behind Mason's house. In this first-of-its-kind foraging story told through the eyes of a third-generation mushroom hunter, Mason takes his cues from thunderstorms and apple blossoms to grab a basket and hit the woods. The premise is simple: four seasons, four woodland adventures, four wild edible mushrooms, and four kid-friendly, forest-to-frying-pan recipes. Author (and Mason's mom) Melany Kahn quells common fears and puts the "us" in mushrooms by weaving simple science and education through a playful, fungi-finding adventure. Mason teaches us it's never too early to learn, and never too late to start."



"Hear Me Raw: Good Clean Fungi, With Oyster Mushroom+"

hearmeraw.com

\$28 NAMA member Mary Ellen Nussbaum recommends "Hear Me Raw: Good Clean Fungi, With Oyster Mushroom+" mushroom-based cleansing cream and says, "I received this product as a gift and really love using it. It is very gentle on skin and I love that you can purchase a refillable pod. Their other products are also good."



Cordyceps Tincture

www.mattswildfoodsllc.com

\$25 I use Cordyceps tincture to stay energized when working various fungal forays and one of my favorite makers is Matt Wanasek of Matt's Wild Foods. Matt is a mushroom farmer located in northern Wisconsin, where he is stalwart member of and teacher for the NAMA-affiliated [Wisconsin Mycological Society](#). Of his



tincture, Matt says “*Cordyceps militaris* Dual Extract Tincture is a metabolic health superfood that supports healthy energy, endurance, and athletic recovery. It promotes healthy oxygenation of tissues and cellular regeneration, nourishes the lungs, kidney, liver, heart, pancreas and adrenal glands.” – Ed.

Cordyceps Molasses Extract

 www.etsy.com

\$40 Our Culinary Arts Committee's Wade Fox recommends this alcohol-free *Cordyceps* molasses extract made by an expert saucier through a special proprietary process; molasses extracts all the medicinal qualities of the fungus into a delicious, ultra-potent, versatile extract that's like nothing else on the market.



Mikuni Wild Harvest

 www.mikuniwildharvest.com

\$26-\$156 NAMA

Culinary Arts Committee Chair Julie Schreiber connected us with Mikuni Wild Harvest, which provided us with truly excellent wild mushroom products for our Pacific Northwest NAMA Camp Annual Foray last month; attendees were universally wowed by the quality and diversity of their products and many enjoyed their first-ever taste of PNW cauliflower mushroom (*Sparassis radicata*) and matsutake (*Tricholoma murillianum*) thanks to Mikuni! Their prices are competitive, with excellent quality and freshness—and friendly, committed owners and staff. Tell them NAMA sent you! – Ed.



FUNGI Magazine fungimag.com

For those who want cutting-edge info and news of the global mushroom world, *FUNGI Magazine* is a must! Always stunningly laid out and packed to the, er, gills with gorgeous photos and surprising stories as well as art, (including famous “Shroompa,” Art Goodtimes!), editor/publisher—and NAMA’s 2021 Gary Lincoff Award Recipient—Dr. Britt A. Bunyard never fails to dazzle and delight thousands of subscribers. – *Ed.*



Corvidopolis corvidopolis.com

Chris “Corvidopolis” Adams conjures the coolest whimsical, wearable, functional art around! His work’s simple messages—“Eat Mushrooms, Don’t Kill People” and “Born To Rot”—adorned with his unique interpretations of various mushrooms that never fail to invite conversation while making a statement. Stickers, totes and tees—something for everyone! – *Ed.*



Foraging Bag shop.modern-forager.com



\$48 I snagged the prototype of this foraging bag in 2018 and have brought it to every foray I’ve been fortunate to fly into since. In fact, I have two of these functional fungbags! Durable and surprisingly roomy, with four deep, separated pouches made from reused and repurposed textiles, its mesh bottom allows the mushrooms to clean themselves significantly as you foray along, with sand—and spores!—falling back to the forest floor. Rinsable and/or tossable into the washer if it you let your bounty sit too long, the magic of this mushroom “bagsket” is that it folds flatter than a flapjack and weighs next to nothing in your checked bag, enabling you to pack home more shroomy treats! Comes in maroon, black, silver and blue while supplies last. – *Ed.*

TursiArt www.etsy.com

\$6-\$25 TursiArt offers something whimsically fungal and fungally wonderful for everyone on your shopping list. If you’ve been to at least two large mushroom events on the West Coast, or any NAMA foray the past 7 years or so, you’ve probably shopped the TursiArt booth. Her jewelry, pins, stickers, ceramics, sculptures, dish towels, millinery and more are often seen “in the wild” and never fail to elicit the question, “where did you get THAT?” Why, from TursiArt, of course! Her price points accommodate all budgets. – *Ed.* 



mq

TREATING CLUSTER HEADACHE

WITH PSILOCYBIN-CONTAINING MUSHROOMS

Photos courtesy of Avery Stempel, Bob Wold and interviewees

AVERY STEMPEL,
MEDICINAL MUSHROOMS
COMMITTEE

Please note that commentary in this article expresses the viewpoint of its author and interviewees and does not represent the opinion of the North American Mycological Association which, as an organization, does not take an advocacy position one way or another as to the use of psilocybin-containing mushrooms. – Ed.

Psilocybin-containing mushrooms have been getting a lot of attention for their impact on anxiety, depression, post-traumatic stress disorder (PTSD) and other mental-health conditions. In this article, I will be focusing on a different set of conditions for which psilocybin treatment has shown tremendous promise, specifically through pain management. I believe the many and varied uses of psilocybin-containing mushrooms will have huge impacts on the fields of medicine and wellness. As these substances become increasingly legally available over the next decade and beyond, the financial impacts will also be significant, both in terms of money spent on psilocybin-containing products and in the personal and societal benefits that come from successful treatment of debilitating physical and mental conditions.



Ingmar Bergman, Eileen Brewer, Joe McKay and Avery Stempel in the Well at the NY State Capitol.

Making the case for legal accessibility to psilocybin-containing mushrooms for pain management is easy once you understand the plight of those who are impacted by cluster headaches. Clusterbusters (<https://clusterbusters.org/>) is an advocacy group focused on researching treatments for a condition of neural-pain attacks called trigeminal autonomic cephalgias, cluster headaches or, more commonly (among other head-related pain conditions), “suicide headaches.” According to Clusterbusters Board Member Joe McKay, an attack goes something like this:

“A cluster headache attack begins with the activation of the trigeminal nerve; think of when you eat ice cream too fast and you get that brain freeze feeling. That’s the area in your head where the pain is felt, except the pain is much more extreme and no matter what you do it continues. Oftentimes, people resort to banging their heads against a wall to distract or somehow change the sensation; this does not work, and, as the attack continues, you get a feeling as if a burning-hot knife has entered your eye socket and someone is trying to pry your eye out. You become extremely agitated, pacing, rocking and eventually collapsing into yourself as you are in a state of shock where there is nothing in the world but you and the pain. This experience can continue for up to 3 hours and can occur multiple times in a 24-hour period. Attacks are especially common at night, adding sleep deprivation to the brutal toll of this disease.”

According to the National Library of Medicine for the National Institutes of Health, like other trigeminal autonomic cephalgias (TACs), cluster headache is a short-lasting unilateral headache with at least one autonomic symptom ipsilateral to the headache, such as lacrimation, nasal congestion, conjunctival injection or aural fullness. The associated nasal congestion can sometimes lead to a misdiagnosis of “sinus headache” and patients are often managed by decongestants, which are ineffective for cluster headaches. These headaches can occur up to eight times a day. They usually occur at approximately the same time of day, most often at night. Most patients are episodic, with daily attacks for weeks to months, followed by remission for months to years.¹

There are a few FDA-accepted ways of treating cluster headaches, High-Dose Oxygen Therapy or an injection of Sumatriptan can sometimes work. There are a few other pharmaceutical drugs that are often prescribed in an attempt to prevent attacks.²

Here is a video from 2017 by the BBC that shows footage of people suffering through cluster headache attacks and discussing research efforts to help understand this condition.



Please be advised that this video contains disturbing images of people in intense pain: [BBC Cluster Headache Video](#).

One of the most effective methods for stopping a cluster headache cycle is the ingestion of a small dose of psilocybin-containing mushrooms. About 1 in 1,000 people suffer from cluster headache and this condition remains vastly underresearched, with few medicines specifically designed and approved as treatments. “Clusterheads,” as people with this condition often refer to themselves, are forced to try a wide range of medicines borrowed from other diseases in a largely futile effort to escape the pain.



Joe McKay (representing Clusterbusters) and writer Avery Stempel (representing of New Yorkers for Mental Health Alternatives) speak to a NY State Senator.

The nonprofit organization Clusterbusters is working avidly to spread awareness of this condition and to get help to people who are often misdiagnosed, undertreated and criminalized for incorporating psilocybin-containing mushrooms as part of their treatment plan.³

So how was it discovered that psilocybin (and LSD) reduces or entirely eliminates cluster headaches? From the Clusterbusters website: “In late 1998, a man posted a message on an internet bulletin board that he suspected LSD had prevented his usual cluster-headache cycles. He had successfully experimented on himself using indole-ring hallucinogens and he posted that he planned to continue using the treatment. This idea was met at first with much skepticism, as many clusterheads had seen a hundred scams, crazy ideas and misguided treatments borne of desperation over the years.” Visit the History section of their website to read more.⁴

According to Executive Director Bob Wold, “For more than 20 years, Clusterbusters has been a patient-led nonprofit organization that focuses on connecting and educating people with cluster headache and supporting the development of new treatments. Magic mushrooms are indeed magical, but the real magic is in combining psilocybin (or other psychedelics) with community and support. We provide this through our website, private online forum, support group meetings, annual conferences in the U.S. and UK, and our new ClusterBuddies peer-to-peer support program that pairs experienced

clusterheads with those who are newer to the condition or exploring new treatments. Dealing with one of the most painful conditions known to medicine and avoiding the despair that all too often comes with excruciating pain, truly takes the support of an entire community.”

Millions of people around the world are impacted by cluster headache. From the people who experience the attacks directly, to their friends and family who often struggle with their inability to help, to the thousands of doctors, nurses, dentists, and psychiatrists who are undertrained in recognizing this condition. It is critical that awareness of TACs be increased everywhere and in order to facilitate these treatments it is paramount that access to psilocybin-containing mushrooms for treatment becomes legal. For many clusterheads, their tagline is “psilocybin or suicide.” Easing their suffering, allowing them fully to live their lives and removing the fear of arrest or wrongdoing should be simple.

Following are three stories from across North America that detail the trials and travails of clusterheads and their journeys toward understanding their condition as well as finding relief from the severe pain. These very personal stories have been edited for length and to protect anonymity where desired.

Carlos from Mexico

“My name is Carlos and I’m 51 years old. I’m originally from Tijuana, Baja California, Mexico. My parents, two sisters and just a couple of former coworkers make up my circle of friends and family. Cluster headaches began for me in 1993 when I was 20 years old. When I first started experiencing my headaches, I went to an otorhinolaryngologist, Dr. V., he told me the cause of the pain was sinusitis and that my solution would be an operation. He also told me that sinusitis in some people can come back again.

“I decided not to have the surgery and looked for another otorhinolaryngologist, Dr. E., who prescribed me nasal lavages (flushes) with saline solution. It would be a treatment of several weeks. Of course, this treatment did not work. I then went

For many clusterheads, their tagline is “psilocybin or suicide.” Easing their suffering, allowing them fully to live their lives and removing the fear of arrest or wrongdoing should be simple.



to a third otorhinolaryngologist, Dr. R., who also prescribed me medications. Nothing worked for me. I sought out a cardiologist, Dr. J., who sent me home with a Holter monitor (a portable electrocardiogram) and heart medicine since he thought the cause of my headaches might be heart related. Next was a neurologist, Dr. N., who prescribed me a lot of medications for depression and suggested neurological studies. Nothing worked for me.

“I also tried with my family doctor for years and never found the cure. I went with Dr. A., who told me to have an MRI and get blood tests. He gave me an occipital nerve-block injection. I then went to a doctor to whom I mentioned that I was taking a medication that I self-prescribed called Dexamethasone, which was working for my cluster headaches (it would give me hiccups for hours and eventually stopped preventing my headaches). He was very firm in his response when he told me to “keep taking that medicine forever unless you want to have headaches again.” He was the worst M.D.

“I tried so many types of medication for trigeminal neuralgia and cluster headaches. I tried MRIs, chiropractors, homeopathic medicine, acupuncturists, relaxing oils, incenses, relaxing sounds, hot and cold showers, avoiding the foods suspected to cause headache, cardiovascular medications, psyllium husk, magnesium, melatonin, cannabidiol and CBD oil (these actually triggered cluster headaches for me), and drinking a lot of water. Drinking lots of water wasn’t a good idea because you lose a lot of minerals and in my case it actually triggered cluster headaches. After all these years of taking so many kinds of medicine, when I had a colonoscopy they discovered I had diverticulosis. Then I had to change my eating habits. Now my diet consists mostly of vegetables, fruit and fish, with only occasional chicken or meat.

“I continued looking for doctors that could cure me. But the only thing they did was prescribe me so many prescription drugs that weren’t effective for me. The doctors I worked with, and medical science as a whole, still do not know what causes cluster headaches.

“I continued looking for doctors that could cure me. But the only thing they did was prescribe me so many prescription drugs that weren’t effective for me.





Clusterbusters members meet with Rick Doblin.

“Then in late 2019 or early 2020, I first tried psilocybin-containing mushrooms. One challenge I ran into was trying to find a place to obtain them. Trying to find people who sell this type of mushroom is very difficult if you don’t have the contacts. People tell you they sell mushrooms and then rip you off. Or they make it difficult to pay by using a payment method called Bitcoin or other cryptocurrency. Another obstacle was trying to cultivate mushrooms and not having any success. The biggest challenge was that these mushrooms are considered illegal and are therefore not widely available to people like me.

“My friends and family know that I use psilocybin-containing mushrooms to prevent or cure cluster headaches. It is so confusing to me that these mushrooms are considered dangerous. I believe that all legal medications are dangerous for your health in the long term. Yet, many people consider something that nature provides “dangerous” for the human being?! I can’t say what will happen if it becomes legal in the future. It’s like the flip of a coin. If it becomes legalized, the ones who are going to have control are going to make the money, just as with prescription medications right now. I credit my sister for helping me to search the Internet, which is where I found Bob Wold and the Clusterbuster community. Thank you, Bob Wold! Thanks to my sister and brother-in-law that gave me all their support. Thanks to my parents who suffered my pain for years. Thanks to my family for everything they’ve helped me to get through.”

Andrew from the USA

“My name is Andrew Cleminshaw and I have been a cluster-headache survivor since 2004, when I was diagnosed at the age of 12. I live in southwest Michigan with my wife (another cluster-headache survivor), two children and two dogs. We live close to my mom and pops, which has been a monumental relief while trying to find my way in the chaotic world with cluster headaches. In the 20

years since I was diagnosed with CH, I have tried almost every concoction of medications possible ranging from anti-seizure and blood-pressure meds to magnesium infusions and nasal ketamine therapy, none of which produced much success. I allowed myself to be a guinea pig and for any medication that could possibly improve my quality of life. By the end of my journey with traditional medicine, I was swallowing around 40 pills per day.



Andrew Cleminshaw (bottom left) at a Clusterbusters Conference.

“At age 17, after 5 years of surviving with cluster headaches, my mother informed me that she had received a “care package” from an “angel” who had been supporting her through an online cluster-headache forum. If I was willing to try something new and unorthodox, there may finally be some hope, something neither of us had felt for a long time. After reflecting and detoxing off of all my prescription meds, I decided to take the plunge and venture into uncharted territory. I decided to try the psilocybin-containing mushrooms.



Andrew Cleminshaw and Ashley Hattle at a Clusterbusters Conference.

“What I found, aside from the fact that TV and movies severely over exaggerate the effects of psychedelic compounds, was a new lease on life. For the first time in 5 years I had 24 hours without a cluster-headache attack. It took me a long time to be comfortable sharing this part of my life with anyone, even some of my closest friends, out of fear of what could happen to me or my mother (at the time I was a legal minor) for simply trying to heal what the nation’s best headache specialist could not.

“Thus began a years-long journey for lasting pain relief and to spread awareness of my condition and how I found relief. Securing these medications (that’s how I refer to them, because that’s what they are for me) was not easy, especially living outside of a major city center where anything illicit was done under cover of darkness in dive bars. It was a challenge to secure the mushrooms.

"It was also difficult because being able to share freely what was changing my life in such a positive way seemed to be a dire ultimatum: either keep silent or live in judgment. I spent many years in silence until I became an advocate and champion for cluster-headache research, treatment and awareness. It was then that I decided: closed lips spread no news. If I stay silent, I'm only hurting others by not giving them a real-life example of what it looks like to use psychedelic compounds responsibly and regularly for medical or even recreational needs.

"Flash forward to 2024: I have been consistently using these compounds for over 10 years with no measurable negative effect on the trajectory of my life or my future potential. I now actively share this with anyone who will listen. At this point in my life, I have no concerns about what "society" thinks about what I do. The tides of change are growing every year as we see more and more states decriminalize or legalize other substances that used to be considered highly dangerous. I am actively fighting the hypocrisy that is making a natural compound criminal to possess and ingest, while approving synthetic alternatives! Nature always wins. It's only a matter of time until those old notions disappear entirely. I believe we will have a world where everyone has access to safe, affordable, medications. I would love to see psilocybin, LSD and MDMA therapies expand their services similar to what we see of cannabis in Michigan. With a doctor's approval, a patient should be able to purchase their medications safely and consume them in the safety of their own home."

Rhonda from Canada

"My name is Rhonda Card and I am a 50-year-old mother of 4 daughters. I'm from a small town in Alberta, Canada with a population of approximately 250 people. I grew up on a farm and was raised by my grandparents due to my mother passing away in a vehicle accident when I was 10 years old. My brother was 7. She was 28 at the time.

"I started to get cluster headaches around the age of 13 but we didn't know what they were back then. My grandparents would let me stay home from school, tell

"Flash forward to 2024: I have been consistently using these compounds for over 10 years with no measurable negative effect on the trajectory of my life or my future potential."





Rhonda Card and husband at their wedding; they met through Clusterbusters, as he is a fellow sufferer, and got married at the org's 2024 annual conference.

me to take a Tylenol and go back to bed. “Go lie down,” they said. I couldn’t lie down. It was too painful! I couldn’t sit still. I seriously thought I had a brain tumour, however, our doctor said that no tumour was visible and gave me pills. The pills would take too long to kick in. I think they thought that I was exaggerating how bad the pain really was. The headaches finally went away—we didn’t know why—only for them to return the following summer. It would be like this for approximately 3 months every year. I would get 4 to 12 attacks every day, throughout the day and night. I could hardly sleep at all. “It must be allergies!” the doctor said.

“When I was in high school, the headaches seemed to completely disappear. We had no clue why, but I was very thankful. I would go out with my friends and party on the weekends. We were experimenting with weed, LSD and magic mushrooms at that time. Living life and enjoying every minute. When I became pregnant with my oldest, I stopped smoking, drinking and partying. It wasn’t long after that that my headaches returned. We didn’t understand why. I couldn’t take any meds, I was pregnant and to be honest, nothing helped me anyway. The drugs the doctors prescribed made me feel like a zombie.

“Finally, in my late 20’s a doctor mentioned that I may have cluster headaches/alarm-clock headaches. He saw the pattern. I was so happy to finally have a diagnosis. Then he told me that there is no cause and no cure. I went home and cried like a baby. I did not want to have to live with this pain every day. I even contemplated suicide. I was defeated but I knew what it was like to grow up without a mom and I just couldn’t do that to my kids.

“Ten or so years later, some friends saw an episode of National Geographic about using psilocybin, or magic mushrooms, to treat cluster headaches (the famous video with Dan Ervin and his wife LeeAnn). I was skeptical but it made sense when I thought about my lack of attacks when I was partying during my earlier years. I eventually found that video and another video of Bob Wold speaking about cluster headaches. This led me to finding Clusterbusters on Facebook.

"I finally found some people that understood what I was going through. I was so happy I told everyone: my family, my friends, everyone I knew! My problem now was how and where to source the magic mushrooms? I hadn't been in the party crowd for a while; however, I knew the substance was more prominent in the summer months. I reached out to my friends (family was too judgmental) and let everyone know what I was looking for. One day a good friend of mine saw me at the gas station and said "Rhonda, I found your headache medicine! It's in my truck! I was so happy and excited, which quickly turned to fear and anxiety when I got home. The next step was to eat them. I think they taste horrible. How much should I eat? I was so nervous. Thankfully the people within the Clusterbusters group helped to answer all my questions. I was still anxious though. I had them for a month and was scared to take them.

"One day I just had enough of the pain. I was exhausted. I couldn't sleep and I finally had the weekend off. It was 2015, and I was in the 6th month of a cycle, the longest cycle I had ever experienced. I let everyone know what my plan was. I arranged for a babysitter for the kids and myself for the night that I ate them. I did get some slap-back pain, my head was mad, it was awful. I eventually fell asleep. It was the most sleep I'd had in months. I woke up feeling different and refreshed. I was surprised that I hadn't woken up at all during the night. I couldn't help but wonder, but how will tonight be? The next few nights, I continued to wake up every two hours to see if my head was hurting, it was like I could feel it coming to my house but it drove on by! It took about a week for me to quit waking up like clockwork. It worked! I was completely pain-free for over two years! The attacks did come back; I found more mushrooms, I ate them again and got 2 more years of pain-free living. I decided to start eating them once a year, and now I've had 4 more entire years of a pain-free life. I had my life back and my girls had their mom back. It was amazing! It was wonderful for all of us to be able to spend time together. We were going places and seeing new things. I continue to eat them once a year. Always having to plan around the girls and social events and work. It isn't easy but it's necessary. It saved me.

"Those magical mushrooms gave me my life back. Now that I'm older, I don't care as much about what people think. I try to tell everyone what helped me, maybe they know someone who is also suffering with these attacks. Rare, but possible. I hope that one day all clusterheads will have access to psilocybin-containing



Eileen Brewer addresses 2019 Clusterbusters Conference.

mushrooms. A reliable source would make such a difference. It's an option that has minimal side effects, unlike the meds that we often take. I now grind mine up and put them in capsules myself. It helps me to avoid tasting them. We now know that psilocybin-containing mushrooms also help with the depression, which is part

of cluster headache as well. It's a win-win in my book. Mushrooms saved my life and made sure my kids grew up with a mom, and that my grandkids can have their grandmother in their life. I'll be forever grateful to Clusterbusters, for giving me the tools, the knowledge and the courage to take my life back. I am a survivor, no longer a patient with side effects."

Like Carlos, Andrew and Rhonda, so many people around the world have suffered through misdiagnoses, failed cures and ridicule by misguided friends and family. A potent and effective treatment does indeed exist and must be made legally available. The power to promote neural plasticity, rewire misfiring pathways in the brain and stop the cycle of pain surely outweighs any potential harm these fungi may cause.

According to Clusterbuster Board Member Joe McKay, "Clusterbusters has been involved in many states in the U.S., advocating for the use of psilocybin to prevent and stop cluster attacks. We are continually meeting with legislators, telling our personal stories of how psilocybin for many clusterheads is the only thing that is effective in treating the pain, allowing them to function normally instead of putting life on hold while suffering through multiple daily attacks. Oftentimes, patients while in a cycle cannot work. They end up losing their employment and healthcare. Parents with young children have difficulty caring for them as well and it's these real life stories that Clusterbusters hopes will make a difference in advocating for legislation that includes psilocybin as a treatment for cluster headache." Additional research and academic studies can be found on the Clusterbuster website.⁵

The Canadian Health System maintains that psilocybin containing mushrooms are illegal but has created three pathways through which one can gain legal access:

1. through a legal clinical trial.
2. through what is called a "special access program."
3. by getting an individual exemption to the Controlled Drugs and Substances Act.⁶



In Mexico, psilocybin-containing mushrooms are legal for religious or ceremonial practices and possession and use of small amounts is not a punishable crime so long as they are not found or consumed near restricted locations (schools and prisons). There is active legislation at the federal level that would create legal access for medical and mental-health purposes.



Avery Stempel, Amy Hood and Joe McKay at the 2023 Clusterbusters Conference.

States across the USA have been moving towards creating legal access. Laws have been passed in Oregon, Colorado, Indiana, Utah, Alaska, Connecticut, Maryland, New Hampshire, New Jersey, Texas and Washington to create direct access, reduce penalties, advance research or to form working groups to study how to implement access. In fact, only 11 U.S. states have no active psilocybin/psychedelic legislation being considered. There are also multiple municipalities in several additional states

like California, Michigan and Massachusetts that have passed local referendums decriminalizing possession and growth of psilocybin-containing mushrooms.

It is important that cluster headache gets more attention and research. I was invited to participate in one of the Clusterbusters annual conferences in September of 2023. Hearing the stories of people experiencing intense pain and being misdiagnosed with sinus problems, tooth issues or even going so far as to get a lobotomy to stop their suffering was eye-opening, to say the least. Discovering that cluster-headache cycles can be interrupted or even fully eliminated by psilocybin-containing mushrooms means that access to effective medicine can be as simple as a small monotub in a spare bedroom, which is currently considered a U.S. federal crime. As groups like Clusterbusters work diligently for their members and others across the world, the idea that these natural medicines be legally allowed becomes more and more feasible. No one should be criminalized for their attempts to heal.

For more information on the Clusterbusters organization, their efforts to increase awareness and create legal access to psilocybin-containing mushrooms, please read Dr. Joanna Kempner's book *Psychedelic Outlaws: The Movement Revolutionizing Modern Medicine* (Hachette Books, 2024). 

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3. <https://clusterbusters.org/study/new-clinical-study-of-cluster-headaches-investigating-the-efficacy-of-psilocybin-is-now-recruiting-participants-2/>
4. <https://clusterbusters.org/about/>
5. <https://clusterbusters.org/past-research/>
6. For more details on these three avenues, please visit <https://www.canada.ca/en/health-canada/services/substance-use/controlled-illegal-drugs/magic-mushrooms.html>.

The logo consists of the lowercase letters 'm' and 'q' in a stylized, rounded font. The 'm' is formed by three vertical bars of varying heights, and the 'q' is a simple, rounded shape with a small tail. The letters are dark brown with a subtle wood-grain texture.A woman with long brown hair, wearing a grey hoodie, is crouching in a forest with autumn foliage. She is holding a smartphone and taking a photo of a mushroom growing on a mossy log. The forest floor is covered in fallen leaves, and the trees in the background have yellow and orange leaves.

When Mushroom ID Apps Aren't Enough

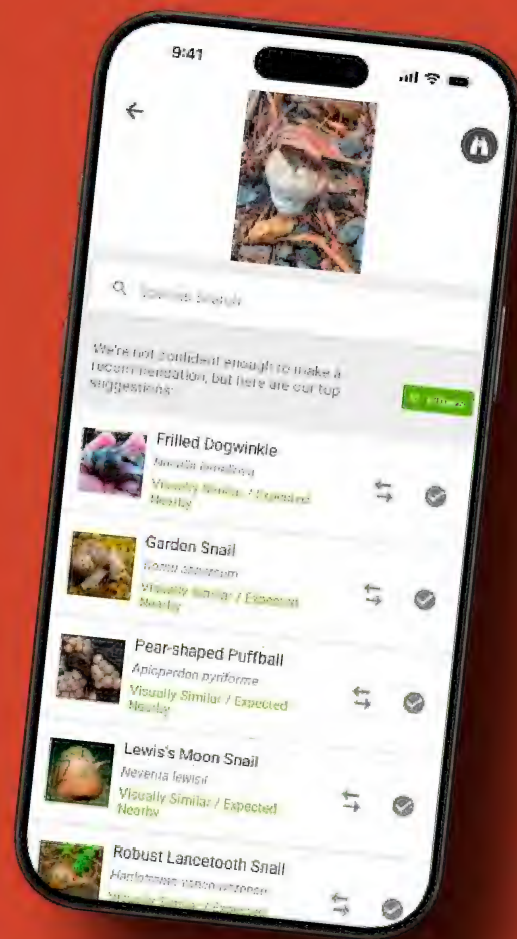
(SPOILER ALERT: THEY NEVER ARE)

REBECCA LEXA, OMN

I will be the first to admit that I am an iNaturalist nerd. I was introduced to the app several years ago when I trained for a citizen-science project surveying American pikas (*Ochotona princeps*) on the Oregon side of the Columbia River Gorge.

After spending over a decade identifying organisms around me with field guides and websites, I happily added it to my nature identification toolkit; since then I have logged over 4,000 observations, including plenty of fungi.

I'm far from the only person who's also incorporated apps into mushroom-hunting excursions, and I even teach my foraging students some of iNaturalist's features that can help them formulate a more confident identification of a mystery mushroom. This isn't a tool to be taken lightly, however, and the very first thing I emphasize in a classroom or field setting is that apps should never, ever be used alone, but instead in conjunction with field guides, keys, websites and the advice of experienced foragers.



There are two good reasons to be cautious about incorporating apps into foraging. The first is that an app can't replace the observational and critical-thinking skills needed to identify a mushroom (or any other organism) accurately. When you have a mystery mushroom, you need to be able to carefully look at it in great detail and make note of physical traits like colors, shapes, textures and substrate. This data can then be used to compare the mushroom to species in field guides and other resources—but you need to be confident enough in your judgement to be able to really examine your specimen, tell the difference between similar species and arrive at a solid identification. An app cannot replace that.

More concerningly, even the best ID apps can be wrong. All any app can do is take the visual data (photos), seasonal data (date) and location data (GPS coordinates) of your observation, use algorithms to sort through its database and then suggest

species whose data is a close match. An app can't think "Hmmm, from the top the mushroom looks like this species, but the hymenophore is a better match for that one." Nor can it flag the similarity between an edible species and a toxic lookalike. In fact, there have been multiple cases where an app identified a mushroom as an edible species, such as a puffball (*Lycoperdon*, *Calvatia* or *Bovista* spp.), when in fact it was something toxic, like a very young death cap (*Amanita phalloides*). Even when the error is harmless, such as when I had iNaturalist try to identify a puffball as one of several species of snail, it still highlights the shortcomings of this technology.

All that being said, I do use iNaturalist to get some initial suggestions for what my mystery mushroom might be out in the field; I just make sure and follow up with more robust research when I get home. I also pay attention when other iNaturalist users agree with my identifications or suggest alternate species that I can then research in more detail as potential better matches. That additional layer of human verification is one reason I prefer this iNaturalist over other apps that only rely on initial algorithmic identifications. As I save all my observations to my account, it makes a convenient record of all the neat fungi and other stuff I've found in my outdoor adventures over the years.

If you are going to use identification apps in your foraging, be judicious about it. Take good, clear pictures of the top, side and underside of any mushroom you're trying to identify and include them in your observations; if you take a spore print, you can add a photo of it as well. Treat any IDs given as suggestions to follow up, not the final word. Use apps in conjunction with other resources such as field guides and mycology groups and consider using iNaturalist for its real-human community. Never take an app's identification as definitely correct, and remember that even the best apps can be wrong. And, as always, never eat anything unless you are absolutely, 100% sure it is an edible species; if there's any doubt, throw it out!

Rebecca Lexa MA, OMN is a naturalist in the Pacific Northwest. She teaches community-level classes on foraging and other natural history topics, and leads guided nature tours in a variety of ecosystems. She is an experienced writer, and is the author of The Everyday Naturalist: How to Identify Animals, Plants, and Fungi Wherever You Go (Ten Speed Press, June 2025). More about Rebecca and her work may be found at <http://www.rebeccalex.com>. 



NAMA Eats

Unlock the Culinary
Secrets of Mushrooms
and Elevate Your
Gastronomic Experience

Homemade Pioppino Hot Chocolate

ROBERT COURTEAU, SECOND VICE PRESIDENT AND CULINARY ARTS COMMITTEE

Yields:

12 mugs of delicious hot chocolate (approximately 180 mL each)

Ingredients:

- 2 liters milk
- 350 grams semi-sweet chocolate chips
- 120 grams vanilla sugar
- 50 grams Dutch cocoa powder
- 30 grams dehydrated Pioppino powder

Optional Garnishes:

- marshmallows
- chocolate drizzle
- candy cane

Directions:

Whisk together the cocoa powder, the Pioppino powder and the milk in a bowl. Be sure to make a smooth texture to avoid lumps in the final product. Pour the milk mixture into the slow cooker and add the sugar and chocolate chips. Turn the temperature on low for 3 to 4 hours, giving it a good stir every hour, ensuring no chocolate sticks to the bottom of the slow cooker. Garnish with marshmallows, chocolate drizzle, and/or a candy cane. ⑩



Traditional Holiday Coquito

NICHOLAS PRIETO, CULINARY ARTS COMMITTEE



Coquito is a beloved Puerto Rican holiday drink often described as a coconut-based version of eggnog. Traditionally made with rum, coconut milk, sweetened condensed milk and spices like cinnamon and nutmeg, it is a creamy, rich beverage enjoyed during festive gatherings. Its warm flavors and tropical twist make it a staple for celebrating the holiday season.

Candy Cap Coquito

This version of coquito elevates the traditional recipe by incorporating candy-cap mushrooms (*Lactarius rubidus*, *L. rufulus*), which are prized for their natural, maple-like sweetness. By infusing the mushrooms into the coconut milk and rum, this recipe adds a unique earthy depth and a subtle caramel flavor that complements the creamy, spiced profile of the drink. It's a creative gourmet twist that honors tradition while introducing a surprising and delightful ingredient.

Ingredients:

- milk: 16 oz
- coconut milk: 2 cans (14 oz each)
- sweetened condensed milk: 12 oz
- Bacardi White Rum: 8 oz
- cinnamon: ½ tsp
- candy-cap mushrooms (finely ground): ¼ cup
- salt: 1/4 tsp

Instructions:

Infuse the Candy Cap Flavor:

- In a mason jar, combine the rum, candy cap mushrooms, and coconut milk.
- Place the jar in a water bath over low heat (approximately 140°F) for 2 to 6 hours, allowing the candy-cap mushrooms to infuse their flavor into the rum and coconut milk.

Cool the Mixture:

- Remove the jar from the water bath and let the mixture cool to room temperature.

Blend the Ingredients:

- In a blender, combine the cooled candy cap mixture with the sweetened condensed milk, milk, salt, and cinnamon. Blend until fully homogenized.

Strain and Serve:

- Strain the mixture through a fine mesh strainer to remove any solid bits.
- Chill thoroughly before serving.

Serving Suggestion: Serve cold in small glasses. Garnish with a sprinkle of cinnamon or a small piece of dried candy-cap mushroom for an elegant touch. 🍷

Vietnamese-style Chicken Mushroom Meatballs in Dark Pho Broth

DR. GORDON WALKER, CULINARY ARTS COMMITTEE

- Dietary: contains chicken, mushrooms, fish sauce, onion/garlic, coconut, rice
- Does not contain: gluten, soy, egg, peanuts, corn
- Serving estimate: 2 lbs of meat = 20 servings at approximately 3 meatballs/person (scale up 5 times for 100 servings)

Broth ingredients:

- 2 lbs of wings/chicken carcasses (bones, neck, wing tips, feet—whatever chicken bits are available)
- 4 inches of ginger (1/4 pound)
- 5 or 6 large shallots
- 2 bunches green onions

Broth instructions:

- Broil/roast until browned/burnt, then cover in water to cook down for 3 to 4 hours
- Add spice sachet, containing the following ingredients:
 - 1 to 2 black cardamom pods
 - 4 sticks cinnamon
 - 5 star anise
 - 5 cloves
 - 1 tbsp. fennel seeds
 - 1 tbsp. coriander
 - 1 tbsp. black pepper
 - 1 tbsp. black trumpet bits
- Remove solids and strain concentrated stock

Season broth with the following:

- 1 scant cup of coconut water
- 1 lump of palm sugar (1 to 2 tbsp. white sugar)
- 2 to 3 tbsp. fish sauce
- Blanch cilantro stems, then remove/chop.
- 1 tbsp. mushroom seasoning powder
- 1 tbsp. chicken pho base
- 2 to 3 limes (juiced)
- Salt to taste.



Meatballs ingredients:

- 2 lbs deboned chicken thighs (ground chicken would also work in a pinch; thighs preferred)
- 1 lb of king trumpets (or beech, oyster, maitake, wild lobster, porcini, chanterelles, etc.)
- ½ lb of cauliflower mushroom and or wood ear
- ½ oz dried black trumpets
- ½ oz dried morels
- 6 cloves of garlic peeled
- 2 inches of ginger (1/8 lb)
- 1 to 2 stalks of lemongrass (optional)
- 1 bunch of green onions
- 1 lump of palm sugar
- 2 tbsp. of tapioca starch
- 1 tsp. of baking soda
- 1 tsp. of baking powder
- 1 to 2 tsp. of porcini powder
- 1 tsp. onion powder
- ½ tsp. five-spice powder
- ½ tsp. white pepper
- 1 tsp. salt
- 2 tbsp. fish sauce
- 5 tbsp. dehydration liquid
- ice cubes

Instructions:

- Rehydrate morels/black trumpets and reserve liquid.
- Rehydrate cauliflower/wood-ear (liquid can be added to broth).
- Roughly chop aromatics in cubes (ready for blender).
- Chop and blanch fresh mushrooms in aliquot of broth (or seasoned water).
- For king trumpets, cut off cap (whole) then cut stems into quarters, then cube.
- To blend, add aromatics, sugar, spices, powders, liquids and half of the dried mushrooms. Blend until smoothish paste is achieved.
- Add roughly chopped chicken thighs (be careful of small pieces of bone) to blender.
- Add a couple of ice cubes and blend 5 to 10 minutes until very smooth tacky force meat achieved.
- Remove into bowl. Manually stir/mix in chunks of blanched and/or rehydrated mushrooms for textural and visual appeal.





To cook meatballs:

- Portion balls with ice cream scoop/spoons/melonballer.
- Add to aliquot of boiling broth with extra garlic/ginger (in hotel pan on stove or in oven).
- Boil 5 to 10 minutes, then remove to boil (can wash with cold water).
- Separately, boil water and pour over rice noodles in hotel pan; let sit 15 minutes.
- Cook caps of king trumpet (dry sauté) with salt, then finish with squirt of hoisin sauce until they are sticky.

Assembly:

- Add small portion of noodles into cup, add 3 meatballs, cover in hot seasoned broth, top with hoisin sauce mushroom (optional; this sauce contains soy/ gluten). Serve immediately.
- Garnish (served alongside or on big communal plates): cilantro, green onion, thai basil/basil, jalapeno/serrano, lime slices. Optional garnish: black-truffle tamari, freshly grated truffle.
- Other options: If you have a bunch of extra chicken skin/fat, you can render to make schmaltz and then use that to make an aromatic oil (ginger, garlic, green onion) with which to top each cup. 🍴

Fermented Shiitake Caps and Fermentation Brine

TYSON ANDERSON

This is a rather simple recipe but the resultant products have quickly become staples in my kitchen. The caps themselves and the fermentation brine are both very powerful ingredients and using a little goes a long way. They are so powerful, in fact, that you may need to double-bag them! It's a bit like storing truffles; you WILL smell it unless you take precautions.

That being said, these are umami BOMBS! Slipped into a stew or chopped finely into a rice dish, a single cap brings a touch of salt and an abundance of deep, savory flavors that can elevate an ordinary dish to something exciting and new. Think of using it anywhere you would use miso paste. The fermentation brine is much the same but can be used anywhere you would use a savory liquid. Personally, I find it useful to augment broths and stocks; a few tablespoons usually does the trick. I also use it in cocktails, where three drops of this concentrated flavor into a glass of bourbon or another brown liquor will enhance the depth of your beverage in ways comparable to the addition of bitters.

This is a fun recipe for me because it harnesses the power of two very different forms of fungi: the shiitake and the microfungi associated with fermentation, such as yeast. It is also a very simple recipe, needing only four ingredients: shiitake caps, water, salt and time.



Choose any size (preferably large) mason jar and fill it with as many shiitake caps as you can, leaving about an inch of space from the top. Remove and measure the dry weight of your shiitake caps, in grams. Multiply the dry weight of your shiitakes by 0.025, or 2.5%; this number is how many grams of salt you need for the mushroom caps.

Next, take about 400 ml (just over 1.5 cups) of water and mix it with 10g salt (about $\frac{1}{3}$ ounce, or 1.67 tsp.) (clever people spot the 2.5 again).

Add the dry-weight salt you measured earlier to the water and mix until dissolved.

Add your shiitake caps to the mason jar again, then add your brine and shake to remove air bubbles trapped among the mushroom caps.

Add a fermentation weight to keep the caps pressed down underneath the water and seal the jar.

Now just wait. Every day, “burp” the jar (open it briefly, then reseal). In a few days it will start smelling funky and almost a little garlicky—this is what you are waiting for! In general, don’t let the fermentation go past a week, as the flavor degrades and changes rapidly after that.

Remove the shiitake caps and reserve the brine. Use immediately or store the caps in the refrigerator. I recommend freezing whatever brine you don’t intend to use immediately.

And do remember, double bag these fragrant fermented fungi! ①



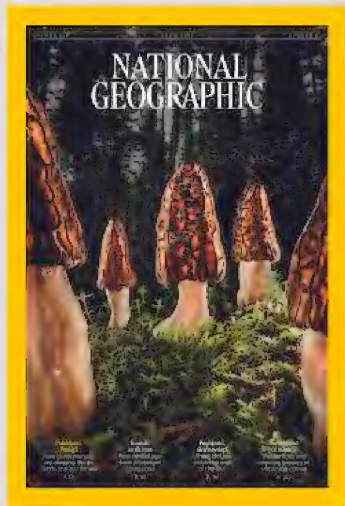


NAMA Reads

Explore Captivating
Literature Dedicated to
Mushrooms and Mycology.

Magazine Review: *National Geographic* Magazine, April 2024 Issue

JOE DELOACH



When I received the April 2024 issue of *National Geographic* magazine, I was delighted to see black morels on the cover. The cover photograph, by Agorastos Papatsanis, shows the *Morchella* bathed in an intriguing light, seemingly lit from within. This magazine arriving at my home during the height of morel season where I live only served to feed the fever. The cover of the newsstand edition features another fine photo of a different mushroom by Mr. Papatsanis and features several others within the issue's lead article, "The Wondrous World of Fungi." The Fungi Foundation states that this issue

was the first time in the over 130-year history of *National Geographic* that fungi were photographed as the cover story. (There is a cute tropical frog inside a mushroom on the cover of the January 1983 edition but the frog is the star of that photo and the edition focuses on rain forests.)

This article continues the *National Geographic* tradition of stirring photography combined with informative content. Beginning on page 16, the article describes “Funga” as a separate Kingdom in addition to Fauna and Flora. “Fungi” were recognized as a distinct natural Kingdom at least as early as 1969 by Robert Whittaker.¹ Simpler organisms had previously been described as Protista and Monera Kingdoms, making five Kingdoms at that time. The distinction between Fungi and Funga is that Funga pertains to the fungal population within a given region. Earlier treatments of the Funga designation can be found in 2000², 2010³ and 2018.⁴ The *National Geographic* article highlights the importance of this distinction for conservation efforts, which often have a local or regional focus.

A strong proponent of such conservation efforts and of use of the “3F’s” is one of the coauthors of the 2018 paper, Giuliana Furci. A native of Chile and a field mycologist, Furci is the founder and CEO of The Fungi Foundation, a Harvard University Associate, *National Geographic* Explorer, Dame of the Order of the Star of Italy, the Deputy Chair of the IUCN Fungal Conservation Committee and a Fellow of the International Mycological Association. *National Geographic* Editor-in-Chief Nathan Lump credits meeting her at the *National Geographic Society’s* annual Explorers Festival during his first week on the job in 2022 as the inspiration behind this cover story.

Additional interesting content includes “mycotextiles.” The use of the polypore hoof fungus, *Fomes fomentarius*, dates back thousands of years in Europe; Otzi the Iceman was carrying pieces, probably for use as tinder.⁵ Current examples of mycotextiles are listed in the *National Geographic* article. The great success story of penicillin is described within a portion of the article dealing with cancer research. The estimate that 90% of the 5 million species of fungi remain undocumented is humbling. We can stay busy!

A section titled “Nature’s Strange Hitchhiker” includes a most interesting sidelight about the ironically named Flora Patterson, the first female plant pathologist hired by the U.S. Department of Agriculture and who was appointed Mycologist in Charge of Mycological and Pathological Collections within the USDA.⁶ Patterson identified Japan’s original gift of cherry trees to the U.S. in 1909 as containing a type of the *Pestalozzia* fungus. President William Howard Taft was convinced to approve these trees’ destruction (by burning on the National Mall) in 1910.

A second set of thoroughly fumigated trees was shipped and arrived free of insects and diseases. These new cherry trees still adorn the Tidal Basin in downtown Washington, D.C.

Patterson also played a role in identification of the chestnut blight fungus (*Cryphonectria parasitica*), sadly after it had already begun decimating the eastern North American forests. A story with a happier ending is interception of the potato wart fungus (*Synchytrium endobioticum*), which could have severely damaged our food supply. This incident and those with the chestnut blight and cherry trees led to passing of the Plant Quarantine Act of 1912, aimed at preventing inadvertent introduction of harmful, invasive organisms. Another of Patterson's accomplishments, from which many mycologists and plant pathologists still benefit, is her contribution to the development of the U.S. National Fungus Collections. Patterson and her successors expended considerable effort building what is today the largest reference collection of fungi in the world, adding over 90,000 specimens to the searchable database, which now numbers over a million samples.

Other portions of the "Nature's Strange Hitchhiker" section pertain to *Amanita phalloides*. That section contains a slight error, stating that "death caps are the culprit behind most mushroom-related poisonings." NAMA and other sources consistently identify *Chlorophyllum molybdites*, (the "green-spored sickener"), as having that dubious distinction. Although *C. molybdites* can cause severe gastric upset and acute dehydration requiring hospitalization, *Amanita phalloides* and related Amanitas are certainly the more deadly mushrooms. Some may infer sensationalism here and in other articles about invasiveness of death caps, but without doubt it is critical for foragers to know and avoid them.

A chapter on "The Hidden Kingdom" contains a much more serious mistake. The centerpiece of that section is on pages 31 to 34, "The Fungal Family Tree." Accompanying this informative depiction are some examples. One is the *Cantharellus* genus. *National Geographic* states "*Cantharellus*, or chanterelles, grow only on trees and are some of the most commonly harvested edible mushrooms." For what had otherwise been a most entertaining article, I couldn't believe what I was reading. I contacted the editor to inform them of the mistake, mentioning that the similar-looking "jack-o'-lantern" mushroom, (*Omphalotus illudens* and *O. olearis*), does grow on trees and is poisonous. I provided descriptions and photos.



I wrote to the editor and suggested that they print a retraction posted to the Corrections and Clarifications section of their website, <https://www.nationalgeographic.com/pages/article/corrections>. After receiving an acknowledgment with a case number, I received a reply stating “Thank you for contacting *National Geographic*. Your note has been sent to the appropriate team for evaluation for correction. Thank you for your interest in *National Geographic*.” Nothing further has occurred. I sent a follow-up email at the start of chanterelle season and received no response.

After several months of frustration and wondering whether anyone was picking jack-o'-lantern mushrooms for a chanterelle recipe, I contacted NAMA to see if you may have enough clout to have had better luck. NAMA Chief Operating Officer Bruch Reed quickly replied that he and NAMA had received the same response from *National Geographic* and that NAMA was not contacted for the piece before publication. The statement in the article smacks of being generated by artificial intelligence; whether or not the error is made by actual human authors it obviously did not receive careful, expert review.

A hallmark of mycologists and responsible foragers is to put safety and accuracy far and away as the highest priority. We caution less experienced friends and acquaintances not to eat anything without being completely sure and we offer to accompany and teach them. We counsel only to eat mushrooms that can be identified confidently. We follow the adage “when in doubt, throw it out.” We don't push others to enjoy our hobby. It is disappointing to see what has been a reputable magazine in an otherwise good article make such a mistake, then not acknowledge it. This unfortunate incident teaches that caution should apply not only to what mushrooms you pick, but what you read. 🍄

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Have a Good Trip: Exploring the Magic Mushroom Experience by Eugenia Bone

BOOK REVIEW BY JESS STARWOOD, [LOS ANGELES MYCOLOGICAL SOCIETY](#)



Flatiron Books—Macmillan Publishing, 2024
320 pages
\$26.99

Eugenia Bone's *Have a Good Trip: Exploring the Magic Mushroom Experience* (Flatiron Books—Macmillan Publishing, 2024) is a captivating and approachable adventure into the world of psychedelic mushrooms. The book takes the reader on a journey that blends science, history and personal stories. Known for her curious and conversational tone, Bone invites readers to explore a subject that had once been relegated to the fringes of society, making it both accessible and engaging for a broad audience.

One of the book's greatest strengths is its readability and personal approach. Bone writes with poignant clarity and clever humor, avoiding the dense jargon that often accompanies discussions of biochemistry and therapeutic modalities. She simplifies complex scientific concepts, such as how psychedelics interact with the brain's serotonin receptors, without sacrificing accuracy. Therapeutic approaches in various settings, including microdosing and macrodosing, are introduced alongside current research and emerging underground practices. This information makes the book an excellent starting point for anyone curious about the subject, whether they're entirely new to psychedelics or have some background knowledge.

Bone's compelling knack for storytelling shines throughout the book as she interweaves her experiences with people she met on her journey and shares their stories. Her personal accounts are frank and relatable, offering a candid glimpse into her own explorations with psychedelics. These stories add a layer of authenticity and warmth, making the book feel like a conversation with a trusted friend rather than a dry exposition. For example, Bone shares her initial trepidation, her steps to prepare for her experiences and the life-changing lessons she gleaned afterward, underscoring the importance of intention and integration.

The stories from others are equally fascinating and provide a mosaic of perspectives on how psychedelics have impacted many lives. Recounts of events and familiar names will delight the mushroom community, such as Alan Rockefeller, Art Goodtimes and the Telluride Mushroom Festival, and even mention our beloved North American Mycological Association. From individuals using psychedelics to manage mental-health conditions to those seeking spiritual growth, these narratives highlight the diverse ways these substances are experienced. Bone's skill as a journalist ensures that these anecdotes are thoughtful, well contextualized and never sensationalized.

Approachability is key to the book's charm, much like her previous title, *Mycophilia* (Rodale Press, 2013), which enthralled the mushroom community and beyond. Bone doesn't claim to be a guru or an expert but instead positions herself as an inquisitive explorer, inviting readers to share in her learning process and how she herself grew throughout the writing of the book. Her balanced perspective acknowledges both the transformative potential as well as the limitations and risks of psychedelics.

Bone touches on topics like safety protocols, the importance of proper guidance and the broader societal challenges of integrating psychedelics into mainstream wellness practices. For readers intrigued by psychedelics but unsure where to begin, *Have a Good Trip: Exploring the Magic Mushroom Experience* offers an engaging, friendly entry point. Her frank writing, combined with her genuine curiosity and compassion, makes this book a standout in the growing genre of psychedelic literature. ①

A Two-part Book Review

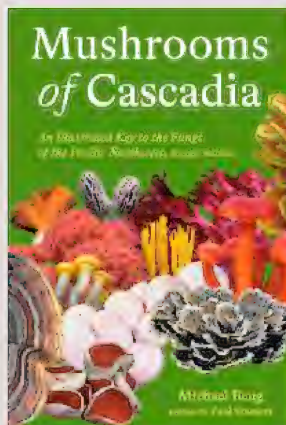
BY DEBBIE VIESS, BAY AREA MYCOLOGICAL SOCIETY

This fall, two new field guides on fungi of the Pacific Northwest (PNW) were published, both with essentially the same name: the first, a second edition of Dr. Michael Beug's 2021 book, retitled *Mushrooms of Cascadia: An Illustrated Key to Fungi of the Pacific Northwest*; and the second, by Noah Siegel and Christian Schwarz, titled *Mushrooms of Cascadia: A Comprehensive Guide to Fungi of the Pacific Northwest*. There has been some confusion around their having the same titles, to the point where Backcountry Press, which published the later Siegel/Schwarz book, felt the need to address the issue on its webpage.

Dr. Beug published his book first after decades spent studying PNW fungi in his home region. But we shouldn't think of these as competing books, where one must choose a side; they are best thought of as amiable companions. Beug's guide is a quick and portable way to identify fungi right in the field, whereas Siegel and Schwarz' book provides a deep dive into Cascadian mycology, something to be savored at home.

I hope my two-part review can help you decide which book is right for you—but frankly, why not acquire both? Be sure to buy these directly from the authors, their publishers or at independent bookstores.

Mushrooms of Cascadia: An Illustrated Key to Fungi of the Pacific Northwest by Michael Beug



Ten Speed Press, 2024

ISBN: 978-1-9848-6347-8

Paperback, 352 pages,

\$28.00 USA/\$37.99 Canada

[https://www.mushroomsofcascadia.com/
where-to-purchase](https://www.mushroomsofcascadia.com/where-to-purchase)

If you love mushrooms and often hunt for them in the great PNW—anywhere from coastal Northern California on up to Southwest Alaska, over to Montana, down through the Cascades and along the western Rockies as far as the Colorado Plateau—I suggest picking up a copy of Dr. Michael Beug’s fine new book: *Mushrooms of Cascadia: An Illustrated Key to the Fungi of the Pacific Northwest*. The “Cascadia” region can be variously defined; Beug takes the broad view.

This is the recently published second edition of Beug’s book. His First Edition was published in 2021, with the slightly different title, *Mushrooms of Cascadia: An Illustrated Key*. Beug is the perfect person to write about this region; he knows these fungi intimately, having lived in the PNW for more than 50 years. He is Professor Emeritus of mycology and chemistry at Evergreen State College in Washington State. His mad skills in writing keys (those of us who have attempted to write our own mushroom keys know that it is NOT easy!) were honed through many decades of working with the [Pacific Northwest Key Council](#). This dedicated group of talented, fungally obsessed men and women have created many useful, detailed and publicly available online fungal keys, without a paywall. Beug has carried on this altruistic tradition throughout his career.

With encouragement from old friend and former student Paul Stamets, Beug decided to publish a general field guide to the PNW but entirely in a key form; these two editions of his book were the result.

Expanding upon the first edition, the new book’s cover is decorated with a brilliant array of beautiful fungi. Beug added forty new species and more photos. Recent nomenclatural changes were incorporated. As we suffering taxonomists know, even some of those names will soon be out of date! 1,500 species are described (Beug informed me that the 3,000 species listed on the book jacket is an editorial error) and the book’s 1,092 included photos illustrate most of them. Lookalikes to illustrated species are also mentioned. Each species is briefly described, including edibility, toxicity, time and location of fruiting. Odor and taste are all covered.

Pictorial and then descriptive keys take you to species, not just similar-looking groups, and highlight important species differences. This information allows you to narrow your search without reading through reams of text. At each branch

in the key, you need to choose the sentence that best fits your mushroom. Keys for the agarics (gilled mushrooms) require that you take a spore print, unless of course you already know the spore color; spore prints can be useful, no matter what jaded fungal folks may say on Facebook! Of course, no key or book will give you every possible mushroom in your area, but this book gives you a very good chance of finding the most common ones and a few rarities, too.

This is a tremendously useful book for both beginners and more experienced mushroom hunters, easy to use, small enough to carry and reasonably priced. In fact, this larger new edition by Ten Speed Press is slightly less expensive than the first edition! Although the fungal descriptions are brief, deeper details can be found on any keyed species in the free-to-download identification program and app [Mycomatch](#), a creation of another Key Council member, Ian Gibson.

Beug doesn't just identify fungi, he eats them with relish—but bear in mind that, as with all mushroom-field-guide authors, he has his edibility biases with which your own palate may differ. He provides a few of his favorite recipes and ways to process your fungi safely once you get home to your kitchen. He writes knowledgeably about the flavors of various fungi and the absurdity of eating tiny things. He has deep knowledge of their toxicity, as both a chemist and as the Toxicology Committee Chair for NAMA for several decades. Edibility and toxicology are discussed for all species illustrated. As someone who fields mushroom-poisoning cases on a regular basis, he is understandably conservative in his edibility recommendations. I was both amused and pleased to see that, as regards the edibility of the vast genus *Cortinarius*, he allowed that species of unknown edibility may well be edible; we just don't know. Of course, he also emphasized the one deadly *Cortinarius* found in the PNW, the rarely encountered *C. rubellus*, which contains the highly nephrotoxic orellanine. But rather than let that one species color all of the rest, he allows that many more might be edible (even if not good), a refreshing take.

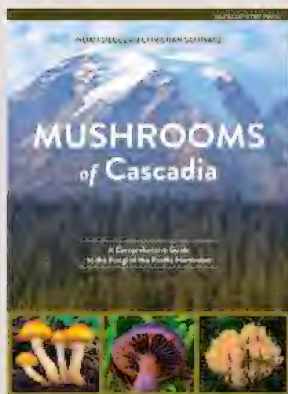
The heart of this book is the keys and the ability to identify fungi mostly by macro characters. Are you frustrated when trying to identify *Ramaria*? I sure am. Beug is an expert in *Ramaria* and it shows. His key to the Pacific Northwest *Ramaria* uses first color, then distinctive features, time of year appearing, etc., to help you get to your species. No time to waste when identifying *Ramaria*—they lose their beautiful colors within a day of picking!

There is an extensive *Cortinarius* section, which sometimes even lists the unique colors seen under UV light. Use of a UV light in species identifications has become more popular within the amateur community and it is fun to have that data available here. One could easily write a book on PNW *Cortinarius* alone. Beug states that *Cortinarius* are the most abundant genus found under Oregon White Oak in the PNW, with many species still undescribed.

Mostly the book is illustrated by Beug's own photos, followed by several dozen photos by his late mentor Kitt Scates Barnhart, a dozen or so from the late Harley Barnhart and a handful from Paul Stamets (mostly *Psilocybe* species, of course!). The book is portable, well bound and printed on high-quality paper; a perfect addition to your basket of field necessities.

Dr. Beug has donated his time, experience and abilities, not just in taxonomy but in his tireless work in fungal toxicology for NAMA, for decades. Do the man a solid and yourself a favor: buy this book. You won't be disappointed.

Mushrooms of Cascadia: A Comprehensive Guide to Fungi of the Pacific Northwest by Noah Siegel and Christian Schwarz



Backcountry Press, 2024

ISBN: 978-1-941624-19-7

Paperback, ebook, 576 pages, \$59.95

Purchase: <https://backcountrypress.com/product/mushrooms-of-cascadia-book/>



Well-known mycologists and authors Noah Siegel and Christian Schwarz have produced a beauty of a book on the fungi of the PNW or, as they call it here, Cascadia. As noted in the first section of this review, the term “Cascadia” has many definitions; these

authors choose a narrow view, with territory ranging from southwest British Columbia, down to Humboldt County in California and throughout the Cascade Range. A map of the area they cover appears on page 12.

Each ecological region within their definition of Cascadia is described, as are the many types of trees that host and feed fungi, whether via mycorrhizae or through the rotting of their wood or decay of their duff. Photos of leaves and bark, needles and cones make Cascadian tree identification a lot easier. If you want to find particular mushrooms, you must recognize their tree hosts, too!

Following on the heels of their successful initial field guide, *Mushrooms of the Redwood Coast (MOTRC)*, *Mushrooms of Cascadia: A Comprehensive Guide to Fungi of the Pacific Northwest (MOC)* is similar in style; the very book cover is derivative and, in fact, this book has a good bit of the same text and original illustrations, at least in the introductory remarks. But don't let that dissuade you from purchasing this book; despite covering around 50% of the same species found in California and Southern Oregon, there are plenty more additions unique to the region. 750 species are illustrated and described, with many more referenced. Even when the species treated here are the same as ones found in *MOTRC*, the photos are all different and the text, at least in part, is different too. Mushrooms in Cascadia often fruit at different times and with different tree species than their relatives in California. For some species descriptions, text is pulled straight from *MOTRC* with little change while others have a few words changed up. New information has been added where necessary as the authors' knowledge has changed; a lot can happen in mycology in only 8 years!

MOTRC and *MOC* are also of a similar size and heft, too heavy to take into the field. I have no issue with heavy identification books—that's just more



information to devour and love! These are books meant to be savored once you arrive home with a pile of mushrooms to identify.

The authors bring novice mushroom hunters along in an informative and appealing manner. Basic mushroom

information is provided: what is a mushroom, how do fungi reproduce; how do humans interact with fungi; how to find and collect and document fungi; how to stay safe in the woods; all quite similar to their first book. One delicious difference is the lovely essay on “What is a Species?” This is a question that many of us old-time mycologists are asking almost daily!

Fungal species covered in this book are grouped according to their macrosimilarities. No one has been willing so far to do it by relatedness alone, since many genetically different species can look rather similar; a deep read of the text will let you know who your mushroom’s daddy is. When you are attempting identifications, it’s the macrocharacteristics that will primarily guide you.

There have also been improvements over *MOTRC* in ease of use: a six-part guide is provided in the introductory section “How to Use This Book,” ranging from how to use the Pictorial Key to the importance of reading the Intro Pages for each Mushroom Group, to Picture Matching, to Reading the Comments, to doing Independent Research, and finally To Ask Someone who knows more than you do! Sound advice for novices attempting to put names to an often bewildering array of fungi.

Another huge improvement is the colored page-section tags. I have always found *MOTRC* difficult to use as I could never find the section I was looking for without heading to the index first. Now, for the agarics, it’s all arranged by spore color, trophic status and size. There are also separate tabs for *Agaricus*, *Lepiota*, *Amanita*, *Cantharellus*, *Russula* and *Lactarius*, a HUGE section on *Cortinarius*, boletes, toothed fungi, etc.—so much easier to find what you are looking for!

Prefacing each tagged section/artificial grouping of similar looking species are helpful hints about how to recognize the various genera contained within.



Sections like the so-called “White Spored Multitudes” will always be a bit bewildering, as they were when once lumped into the overly ambitious Tricholomataceae grouping. Reading through these explanatory section pages ahead of time will help you to find more quickly the specific name of the mushroom at hand.

One stand-out section is their treatment of the genus *Cortinarius*. This is perhaps the best *Cortinarius* treatment in any North American field guide to date. With an estimated number of around 500 described, *Cortinarius* species in Cascadia (and countless species yet undescribed), their photos and descriptions of around 130, with many more merely described in comments, gives bewildered Cort hunters a real leg up in identification as well as an appreciation for the tremendous PNW *Cortinarius* diversity. The authors choose mostly not to use new genus names derived from the division of the genus *Cortinarius* by Kare Liimatainen et al., in their infamous “Taming the Beast...” 2022 publication. That paper was a radical attempt to simplify an unwieldily large genus but caused much consternation among those having to change so many names. These big changes take time to percolate and some are never accepted by all. These newly proposed genera are added in here as synonyms at the bottom of the *Cortinarius* species descriptions, where applicable. Corts that have been newly published with new genus names, like *Calonarius flavipavonius*, are shown with their new genus here.

Another nice addition to this expanded *Cortinarius* section is a full-page table that shows the colors produced by the various *Dermocybe* species, many of which are popular dye mushrooms.

I can understand not being willing to change genus names in *Cortinarius*, since the changes would be so many and contentious. I cannot understand why the authors choose to keep the older section name of *Lepidella* for the section of *Amanita* that contains *A. smithiana*. *A. smithiana* was placed in section *Roanokensis* by Cui et al in 2018, in a major revision of the genus; those changes have been well accepted worldwide. According to Cui, section *Lepidella* now

only refers to saprobic *Amanitas*; if you believe as I do that the new genus *Saproamanita* is a better placement for them, then section *Lepidella* is gone. Another former *Lepidella* in the PNW, *A. silvicola*, was recently shown via DNA to belong in section *Validae*; that change is made here, providing a reminder that one cannot always tell genetic placement by looking at the macrocharacters!

The gilled boletes, species like *Chroogomphus* and *Gomphidius*, *Phylloporus*, *Paxillus* and *Tapinella*, are given their own section. A nice addition is a table that shows the *Suillus* species associated with various species of *Chroogomphus* and *Gomphidius*: if you know your *Suillus*, you can name your *Chroogomphus*/*Gomphidius*!

Authors Siegel and Schwarz are excellent field mycologists and fine photographers and this book reflects that honed skill set and, as noted in the part 1 of this review, all field-guide authors show bias in both edibility and toxicology recommendations. One man's pleasant meal can be another woman's gastrointestinal distress—not to mention (personal food tolerances aside) differences in palate. Although there is indeed one dangerous, even potentially deadly *Cortinarius* species found in Cascadia (*C. rubellus*), a generalized fear of *Cortinarius*—what I call “cortinoia”—frequently influences edibility/toxicity opinions. Many *Cortinarius* species have unknown toxicity; one could leave it at that, rather than add on an unnecessary and unfounded “likely toxic,” as these authors do.

Cascadia is a temperate hotbed of *Psilocybe* species and this book does them justice. Seven species are illustrated and described, with several more mentioned in Comments. There has been increasing interest in the use of psilocybin in treating mental-health issues; its formerly shady reputation has been getting a boost in the public eye, not to mention the numbers of folks who use *Psilocybe* species recreationally. This book can help you to identify your possible drug of choice safely.

I have one criticism of this section: the authors state that a child's death from a *Psilocybe baeocystis* ingestion was likely to have been caused by the (hypothetical) ingestion of an amatoxic mushroom also growing in the grass and eaten along with the *Psilocybe*. The actual case study does not bear out this supposition. High temperatures and convulsions were seen in several (6) children poisoned by *Psilocybe* mushrooms; the deceased victim suffered seizures

that could not be resolved. Stamets, referring to this death in his *Psilocybin Mushrooms of the World*, points out that even the species of *Psilocybe* ingested is in dispute; the photo of the mushroom in the case study shows *P. cyanescens*. The child's symptoms rule out amatoxin and psilocybin can be deadly dangerous to small children and dogs, regardless of exact species.

Amanita muscaria is another species of particular interest to me, especially as it relates to toxicity. Siegel and Schwarz correctly state that it is quite toxic and then go on to describe how it can be detoxified for food, claiming that most find them tasty. However, it is apparently only through caramelizing the essentially flavorless pieces of mushrooms, which are first twice boiled, that gives them flavor. Why start with a toxic species at all? They also incorrectly state that only *A. muscaria* has water-soluble toxins; in fact, so does *Amanita phalloides*! Amatoxin readily falls out of boiled *A. phalloides* and they are tasty, too—as reported by many who are in hospital with liver failure—yet no one is advocating *A. phalloides* consumption even with elaborate detox procedures, and rightly so. The authors add a “caution is warranted” disclaimer to their advice on *A. muscaria* as an edible but they then reference Rubel and Arora's 2008 article, which basically advocates for *A. muscaria* as a safe and unremarkable edible species. Here is a link to my rebuttal to Arora and Rubel, for those who might be interested in an alternative viewpoint: [Further Reflections on *Amanita muscaria* as an Edible Species](#).

I also have a few issues about printing choices. The names of the authors of published species appear faint and barely readable. Pages in *MOC* are also noticeably thinner than in their prior book. Apparently the paper is “ethically sourced” and created from a mix of new and recycled paper. As someone who loves and lives with hundreds of books, page quality matters to me. A heavily used field guide needs to be sturdy and this guide is meant to be used. The price for this paperback is also surprisingly high, at \$59.95. I was pleased, however, to see that the type was larger in *MOC* vs. *MOTRC*; this improvement is greatly appreciated.

A deep read of any mushroom field guide covering so many topics and species will always find some issues and differences of opinion but on the whole, this book is a tremendous accomplishment for Siegel and Schwarz. It is readable, informative, deeply educational and attractive. It will help many people to learn about and become invested in the fungi that surround them and that's a terrific thing. 🍄



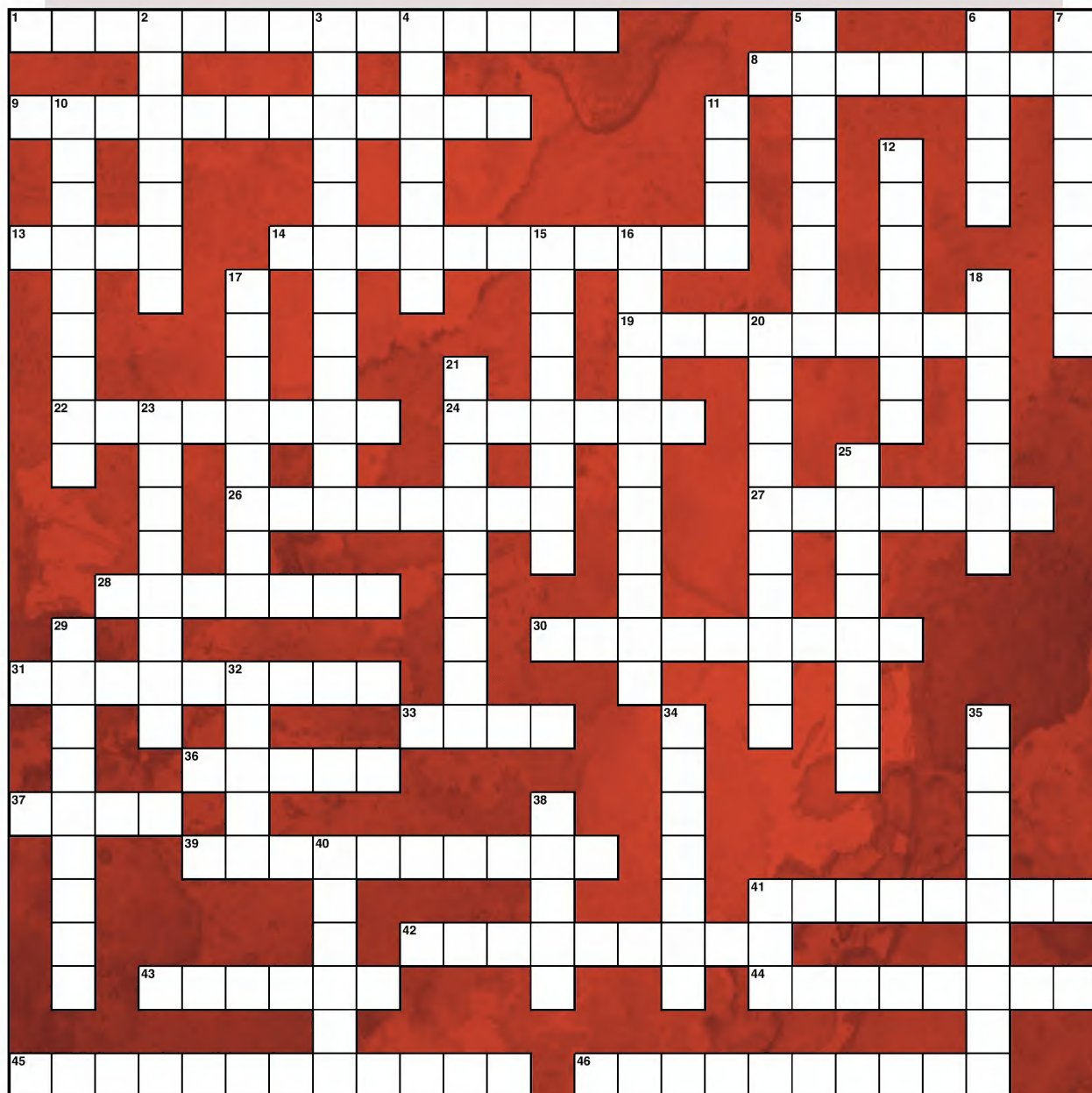
NAMA

Crossword

BRUCH REED, CHIEF OPERATING OFFICER, *MQ* EDITOR

All the answers can be found
in this *MQ* edition!

Clues on the next page



October November December NAMA Crossword

BRUCH REED, CHIEF OPERATING OFFICER, *MQ* EDITOR

Across

- 1** headache-fighting group
- 8** Arora-says-edible epithet
- 9** WCMA's birthday party
- 13** Fear of Missing Out
- 14** Siegel and Schwarz standout section
- 19** president's pick
- 22** variously defined fungal wonderland
- 24** what mushroom-ID apps aren't
- 26** Art Goodtimes' nickname
- 27** Siegel's and Schwarz' vaunted Coast
- 28** It's a bag! It's a basket!
- 30** scented seasonings
- 31** candy cap genus
- 33** Beug's ID oeuvre
- 36** enviable Foray Registrar
- 37** daily need of fermenting jars
- 39** surname of apostolic U.S. headacher
- 41** fun-to-say hot chocolate ingredient
- 42** Ian Gibson app
- 43** Pacific Northwest NAMA Camp
mushroom provider
- 44** pika genus
- 45** WCMA's home incline
- 46** Bone book and *MQ* section

Down

- 2** distinctive Western hat and human
- 3** *Sad Papi* himself
- 4** Beug's former student
- 5** deadly PNW *Cortinarius* epithet
- 6** fermenting liquid
- 7** famed founder surname or club
president moniker
- 10** Siegel laudably lacks
- 11** trigeminal autonomic cephalgias, for short
- 12** 2025 Annual Foray state
- 15** Crested Butte Botanic Gardens Dr.
- 16** "intention and..."
- 17** alcohol-free extract made using
- 18** *francais* for divided portion
- 20** cracked-cap bolete epithet
- 21** dyeing *Cortinarius*
- 23** rendered chicken fat
- 25** psilocybin position NAMA does not take
- 29** Layton's Pacific Northwest NAMA Camp first taste
- 32** country "Mushroom," per Laman
- 34** Puerto Rican holiday beverage
- 35** "generalized fear of *Cortinarius*"
- 38** spoiler alert: he goes mushrooming
- 40** 2023 designing woman
- 41** Vietnamese broth soup

July August September NAMA Crossword

Across

- 1** Hutzel's inspired surprise – **Miso Maple Parsnip Cake**
6 Kimmerer plaits – **Sweetgrass**
11 where asci form – **perithecia**
13 Estonian-sought parasite – **Mycogone rosea**
15 "doulas of nature" – **fungi**
16 a Curry-ous place to dry boletes – **hot tub**
19 uncommonly culinary genus – **Ganoderma**
21 Towns is the Wild – **Epicure**
24 new manager position – **Webinar**
27 Curry ranch county – **Grimes**
28 culinary entrants sought to avoid being – **Chopped**
31 an asexual-spore-producing fungus is – **conidial**
32 *Perisoreus canadensis*, by reputation – **trickster**
33 Chef Schreiber's Italian pudding – **budino**
34 donor of mushrooms – **Mikuni**
35 from a jay? – **tinder conk**
36 Whiskeyjack's lost meal – **ganders**
37 not so saintly in 1980 – **Helens**
38 she conquered the Challenge! – **Ashley Laman**

Down

- 1** surname of "a nice gentleman" – **McKenna**
2 dead trees taller than 6' – **snags**
3 RlmycoS season kickoff meeting – **Mushroom Mingle**
4 FunDiS seeks – **piggyback pinkgill**
5 simple way to preserve hedgehogs – **conserva**
7 leading RlmycoS "storm doubter" – **Tempest Thomas**
8 Cree traditional story – **atayohhkewin**
9 what Arora did – **Demystified**
10 lacking in replanted timber parcels – **biodiversity**
12 safe time to eat culinary mushrooms – **pregnancy**
14 Instagram takeover "particle" – **Quark**
17 royally delicious dish artist – **Katanharoen**
18 dangerous late-pregnancy condition – **preeclampsia**
20 fungi-associating fungi are – **fungicolous**
22 cover "baby" – **reishi**
23 PNW varnished conk epithet – **oregonense**
25 Monegasque Prince or misspelled mountain – **Rainier**
26 a smaller-than-annual NAMA foray – **Regional**
29 Challenge-ing ingredient – **parsnip**
30 Fairbanks' favorite fir – **Douglas**